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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/464,811	12/17/1999	HUILI SHAO	1-10-3	8103

7590 11/01/2002

FERDINAND M. ROMANO
AGERE SYSTEMS INC.
P.O. BOX 614
BERKELEY HEIGHTS, NJ 07922-0614

EXAMINER

CRUZ, LOURDES C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.



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EXAMINER

ART UNIT

PAPER


14

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Commissioner of Patents and Trademarks

The timely submission under 37 CFR 1.129(a) filed on 8-7-02 is not fully responsive to the prior Office action because Applicant has failed to address the 112 rejections set forth in the rejection mailed 4-5-02. Since the submission appears to be a *bona fide* attempt to provide a complete reply to the prior Office action, applicant is given a shortened statutory period of ONE MONTH or THIRTY DAYS from the mailing date of this letter, whichever is longer, to submit a complete reply. This shortened statutory period supersedes the time period set in the prior Office action. This time period may be extended pursuant to 37 CFR 1.136(a). If a notice of appeal and the fee set forth in 37 CFR 1.17(e) were filed prior to or with the payment of the fee set forth in 37 CFR 1.17(r), the payment of the fee set forth in 37 CFR 1.17(r) by applicant is construed as a request to dismiss the appeal and to continue prosecution under 37 CFR 1.129(a). The appeal stands dismissed.


**KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**

3 lower level of interconnect members wherein portions of the lower insulative material electrically
4 isolate the second upper level of interconnect members from the lower level of interconnect
5 members.

6
7 8. The structure of claim 1 further including:

8 a plurality of additional upper levels of interconnect members formed between the first
9 upper level and the lower level;

10 a first layer formed of the first insulative material and positioned between the first upper
11 level and a first of the additional levels; and

12 a second layer formed of the first insulative material and positioned between second and
13 third ones of the additional levels.

1 9. The structure of claim 1 comprising second, third, fourth and fifth upper levels of
2 interconnect members formed between the first upper level and the lower level.

1 10. The structure of claim 9 wherein the first, second, third, fourth and fifth upper levels
2 are electrically isolated from one another by a continuous layer comprising the first insulative
3 material.

1 11. The structure of claim 9 wherein the first insulative material is a single species of low
2 k dielectric material and the second insulative material predominantly comprises silicon dioxide.

1 12. The structure of claim 9 wherein multiple layers each comprising the first insulative
2 material electrically isolate the first, second, third, fourth and fifth upper levels from one another.

1 13. The structure of claim 1 further including a second upper level of interconnect
2 members formed between the first level of interconnect members and the lower level of
3 interconnect members wherein portions of the second insulative material extend to electrically
4 isolate the second upper level of interconnect members from the lower level of interconnect
5 members.

1 14. The structure of claim 12 wherein portions of the second insulative material extend
2 between two or more of the upper levels.

1 15. The structure of Claim 1 further including:
2 a first plurality of conductive portions extending at least between the upper level of interconnect
3 and the lower level of interconnect; and
4 a second plurality of conductive portions extending at least between the lower level of
5 interconnect and some of the electronic devices.

1 16. The structure of claim 15 wherein the first plurality of conductive portions are
2 integrally formed with members of the first upper level in a dual Damascene structure.

1 17. The structure of claim 15 wherein all of the members predominantly comprise Al.

1 18. The structure of claim 1 wherein the first insulative material extends from the first
2 upper level to electrically isolate members of the lower level from one another.

1 19. The structure of claim 1 further including at least a second upper level of interconnect
2 members formed over the first upper level of interconnect members with the first insulative
3 material extending from the first upper level to electrically isolate members of the second upper
4 level from one another.

1 20. A semiconductor structure comprising:
2 a first upper level of interconnect members formed over a semiconductor layer;
3 a lower level of interconnect members formed between the semiconductor layer and the
4 first upper level; and

5 insulative material positioned to electrically isolate portions of the upper level of
6 interconnect members from one another, portions of the upper level of interconnect members
7 from portions of the lower level of interconnect members and portions of the lower level of
8 interconnect members from one another,

9 said insulative material comprising a continuous layer extending from within regions
10 between members of the upper level of interconnect to within regions between members of the
11 lower level of interconnect, said continuous layer characterized by a dielectric constant less than
12 3.9.

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- 1 21. The structure of claim 20 wherein the insulative material further includes portions
- 2 extending between individual members of the upper level and individual members of the lower
- 3 level, said portions formed of material having a dielectric constant greater than that of said
- 4 continuous layer.